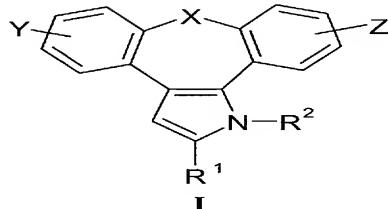


AMENDMENTS TO THE CLAIMS

1. (Currently amended) Use of the compounds of the general A method of treating a disease, damage or disorder of the central nervous system associated with a disorder of neurochemical equilibrium of a biogenic amine or other neurotransmitter, comprising administering to a subject in need thereof a compound of formula I



wherein

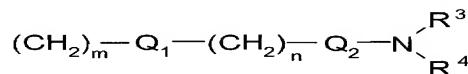
X means is selected from the group consisting of CH₂, or a heteroatom selected from the group consisting of O, S, S(=O), S(=O)₂ and NR^a, wherein R^a is selected from the group consisting of hydrogen, or a substituent selected from the group consisting of C₁-C₃-alkyl, C₁-C₃-alkanoyl, C₁-C₇-alkoxycarbonyl, C₇-C₁₀-arylalkyloxycarbonyl, C₇-C₁₀-aroyl, C₇-C₁₀-arylalkyl, C₃-C₇-alkylsilyl and C₅-C₁₀-alkylsilylalkyloxyalkyl;

Y and Z are each independently from each other mean one or more identical or different substituents linked to any available carbon atom selected from the group consisting of hydrogen, halogen, C₁-C₄-alkyl, C₂-C₄-alkenyl, C₂-C₄-alkynylalkynyl, halo-C₁-C₄-alkyl, hydroxy, C₁-C₄-alkoxy, trifluoromethoxy, C₁-C₄-alkanoyl, amino, amino-C₁-C₄-alkyl, C₁-C₄-alkylamino, N-(C₁-C₄-alkyl)amino, N,N-di(C₁-C₄-alkyl)amino, thiol, C₁-C₄-alkylthio, sulfonyl, C₁-C₄-alkylsulfonyl, sulfinyl, C₁-C₄-alkylsulfinyl, carboxy, C₁-C₄-alkoxycarbonyl, cyano and nitro;

R¹ means is selected from the group consisting of hydrogen, halogen, C₁-C₇-alkyl optionally substituted with one, two, three or more substituents selected from the group consisting

of halogen atom, hydroxy, C₁-C₄ alkoxy, thiol, C₁-C₄ alkylthio, amino, N-(C₁-C₄) alkylamino, N,N-di(C₁-C₄-alkyl)-amino, sulfonyl, C₁-C₄ alkylsulfonyl, sulfinyl and C₁-C₄ alkylsulfinyl; C₂-C₇-alkenyl optionally substituted with one, two, three or more halogen atoms; C₂-C₇-alkinylalkynyl; ~~monoeyelic or bieyelic aryl group having from 6 to 10 carbon atoms and altering double bond and said group can be optionally substituted with one or two substituents selected from the group consisting of fluoro, chloro, C₁-C₄ alkyl, cyano, nitro, hydroxy, C₁-C₄ alkoxy, thiol, C₁-C₄ alkylthio, amino, N-(C₁-C₄) alkylamino, N,N-di(C₁-C₄-alkyl)-amino, sulfonyl, C₁-C₄ alkylsulfonyl, sulfinyl, C₁-C₄ alkylsulfinyl and can be linked to the rest of the molecule by any available carbon atom via direct bond or via C₁-C₄ alkylene group; monoeyelic or bieyelic heteroaryl having the meaning of aromatic and partially aromatic groups of a monoeyelic or bieyelic ring with 4 to 12 carbon atoms and at least one of them being heteroatom selected from the group consisting of O, S and N wherein available carbon or nitrogen represent the binding site of the group to the rest of the molecule either via direct bond or via C₁-C₄ alkylene group and where said heteroaryl can be optionally substituted with fluoro, chloro, C₁-C₄ alkyl, cyano, nitro, hydroxy, C₁-C₄ alkoxy, thiol, C₁-C₄ alkylthio, amino, N-(C₁-C₄) alkylamino, N,N-di(C₁-C₄-alkyl)-amino, sulfonyl, C₁-C₄ alkylsulfonyl, sulfinyl, C₁-C₄ alkylsulfinyl; five member or six member fully saturated or partly unsaturated heterocycle group containing at least one hetero atom selected from the group consisting of O, S and N wherein available carbon or nitrogen represent the binding site of the group to the rest of the molecule either via direct bond or via C₁-C₄ alkylene group and where said heterocycle can be optionally substituted with fluoro, chloro, C₁-C₄ alkyl, cyano, nitro, hydroxy, C₁-C₄ alkoxy, thiol, C₁-C₄ alkylthio, amino, N-(C₁-C₄) alkylamino, N,N-di(C₁-C₄-alkyl)-amino, sulfonyl, C₁-C₄ alkylsulfonyl, sulfinyl, C₁-C₄ alkylsulfinyl; hydroxy; hydroxy-C₂-C₇-alkenyl; hydroxy-C₂-C₇-alkinylalkynyl; C₁-C₇-alkoxy; thiol; thio-C₂-C₇-alkenyl; thio-C₂-C₇-alkinylalkynyl; C₁-C₇-alkylthio; amino, N-(C₁-C₇-alkyl)amino; N,N-di(C₁-C₇-alkyl)amino; C₁-C₇-alkylamino; amino-C₂-C₇-alkenyl; amino-C₂-C₇-alkinylalkynyl; amino-C₁-C₇-alkoxy; C₁-C₇-alkanoyl; C₇-C₁₀-aroyl; oxo-C₁-C₇-alkyl; C₁-C₇-alkanoyloxy; carboxy; an C₁-C₇-alkyloxycarbonyl or C₁-C₇-aryloxycarbonyl; carbamoyl; N-(C₁-C₇-alkyl)carbamoyl; N,N-di(C₁-C₇-alkyl)carbamoyl; cyano; cyano-C₁-C₇-alkyl; sulfonyl; C₁-C₇-alkylsulfonyl; sulfinyl; C₁-C₇-alkylsulfinyl; nitro;~~

or a substituent represented with of the formula II:



II

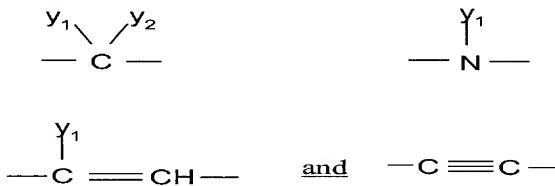
wherein

R³ and R⁴ simultaneously or are each independently from each other have the meaning of selected from the group consisting of hydrogen, C₁-C₄-alkyl, and aryl having the meaning of an aromatic ring as well as fused aromatic rings containing one ring with at least 6 carbon atoms or two rings with totally 10 carbon atoms and with alternating double bonds between carbon atoms; or

R³ and R⁴ taken together with [[N]] the nitrogen atom to which they are attached form a have the meaning of heterocycle or heteroaryl group wherein heterocycle relates to five member or six member fully saturated or partly unsaturated heterocycle group containing at least one hetero atom selected from the group consisting of O, S and N and where said heterocycle can be optionally substituted with one or two substituents which are selected from the group consisting of halogen, C₁-C₄ alkyl, cyano, nitro, hydroxy, C₁-C₄ alkoxy, thiol, C₁-C₄ alkylthio, amino, N-(C₁-C₄) alkylamino, N,N-di(C₁-C₄-alkyl)-amino, sulfonyl, C₁-C₄ alkylsulfonyl, sulfinyl, and C₁-C₄ alkylsulfinyl; or heteroaryl wherein heteroaryl relates to aromatic and partially aromatic groups of a monocyclic or bicyclic ring with 4 to 12 carbon atoms and at least one of them being heteroatom selected from the group consisting of O, S and N and where said heteroaryl can be optionally substituted with one or two substituents which are selected from halogen, C₁-C₄-alkyl, cyano, nitro, hydroxy, C₁-C₄ alkoxy, thiol, C₁-C₄ alkylthio, amino, N-(C₁-C₄) alkylamino, N,N-di(C₁-C₄-alkyl)-amino, sulfonyl, C₁-C₄ alkylsulfonyl, sulfinyl, C₁-C₄ alkylsulfinyl;

m and n have the meaning of are each independently an integer from 0 to 3;

Q_1 and Q_2 are each independently selected from the group consisting of from each other have the meaning of oxygen, sulfur, or a group:



wherein substituents

y_1 and y_2 are each independently selected from each other have the meaning the group consisting of hydrogen, halogen, an optionally substituted C₁-C₄-alkyl or aryl optionally substituted with one or more substituents selected from the group consisting of halogen, hydroxy, C₁-C₄ alkoxy, thiol, C₁-C₄ alkylthio, amino, N-(C₁-C₄) alkylamino, N,N-di(C₁-C₄-alkyl)-amino, sulfonyl, C₁-C₄ alkylsulfonyl, sulfinyl and C₁-C₄ alkylsulfinyl; or aryl optionally substituted with one or two substituents selected from the group consisting of halogen, C₁-C₄ alkyl, cyano, nitro, hydroxy, C₁-C₄ alkoxy, thiol, C₁-C₄ alkylthio, amino, N-(C₁-C₄) alkylamino, N,N-di(C₁-C₄-alkyl)-amino, sulfonyl, C₁-C₄ alkylsulfonyl, sulfinyl, and C₁-C₄ alkylsulfinyl; wherein an optionally substituted alkyl or aryl have the meaning as defined above, hydroxy, C₁-C₄-alkoxy, C₁-C₄-alkanoyl, thiol, C₁-C₄-alkylthio, sulfonyl, C₁-C₄-alkylsulfonyl, sulfinyl, C₁-C₄-alkylsulfinyl, cyano, and nitro, or

y_1 and y_2 taken together with the carbon atom to which they are attached form a carbonyl group or an imino group;

a monocyclic or bicyclic aryl group; a monocyclic or bicyclic heteroaryl group; and a heterocycle, wherein the monocyclic or bicyclic aryl group, the monocyclic or bicyclic heteroaryl group and the heterocycle are linked to the thiophene ring via a direct bond or a C₁-C₄ alkylene group, and are each optionally substituted with one or more substituents selected from the group consisting of fluoro, chloro, C₁-C₄ alkyl, cyano, nitro,

hydroxy, C₁-C₄ alkoxy, thiol, C₁-C₄ alkylthio, amino, N-(C₁-C₄) alkylamino, N,N-di(C₁-C₄-alkyl)-amino, sulfonyl, C₁-C₄ alkylsulfonyl, sulfinyl and C₁-C₄ alkylsulfinyl;

R² has the meaning of is hydrogen, an optionally substituted C₁-C₇-alkyl optionally substituted with one or more substituents selected from the group consisting of halogen, hydroxy, C₁-C₄ alkoxy, thiol, C₁-C₄ alkylthio, amino, N-(C₁-C₄) alkylamino, N,N-di(C₁-C₄-alkyl)-amino, sulfonyl, C₁-C₄ alkylsulfonyl, sulfinyl and C₁-C₄ alkylsulfinyl; or aryl optionally substituted with one or two substituents selected from the group consisting of halogen, C₁-C₄ alkyl, cyano, nitro, hydroxy, C₁-C₄ alkoxy, thiol, C₁-C₄ alkylthio, amino, N-(C₁-C₄) alkylamino, N,N-di(C₁-C₄-alkyl)-amino, sulfonyl, C₁-C₄ alkylsulfonyl, sulfinyl, and C₁-C₄ alkylsulfinyl; wherein an optionally substituted alkyl or aryl have the meaning as defined above, C₁-C₇-alkanoyl, C₁-C₇-alkoxycarbonyl, C₇-C₁₀-arylalkyloxycarbonyl, C₇-C₁₀-aroyl, C₇-C₁₀-arylalkyl, or C₃-C₇-alkylsilyl;

and of their a pharmaceutically acceptable salt or solvate thereof salts and solvates for the manufacture of pharmaceutical formulations for the treatment and prevention of diseases, damages and disorders of the central nervous system caused by disorders of neurochemical equilibrium of biogenic amines or other neurotransmitters.

2. (Currently amended) Use according to The method of claim 1, wherein the selected biogenic amines are amine is serotonin, norepinephrine and or dopamine.

3. (Currently amended) Use according to The method of claim 1, wherein the neurotransmitter is glutamate.

4. (Currently amended) Use according to claims 1, 2 or 3 The method of claim 1 wherein the compounds compound of the general formula I act upon the neurochemical equilibrium by regulating regulates the synthesis, storage, release, metabolism, storing, releasing, metabolizing and/or reabsorption or receptor binding of a biogenic amine amines or neurotransmitter neurotransmitters and binding to their receptors.

5. (Currently amended) Use according to The method of claim 4, wherein the compounds compound of the general formula I show binding affinity binds to a receptor of one or more a biogenic amines amine.

6. (Currently amended) Use according to The method of claim 5, wherein the compounds compound of the general formula I show a significant binding affinity binds to a serotonin 5-HT_{2A} and or 5-HT_{2C} receptors receptor.

7. (Currently amended) Use according to The method of claim 6, wherein the compounds compound of the general formula I show binding affinity to selected binds to a serotonin 5-HT_{2A} or 5-HT_{2C} receptors receptor with an in a concentration of IC₅₀<1μM of less than 1μM.

8. (Currently amended) Use according to The method of claim 1, wherein the compounds compound of the general formula I act as binds to a σ1 receptor ligands in a concentration of with an IC₅₀<1μM of less than 1 μM by modulating central neurotransmitter system.

9. (Currently amended) Use according to claims 1, 6 or 8 The method of claim 1, wherein the compounds compound of the general formula I show dual binding affinity binds to a σ1 receptor and to at least one serotonin receptor selected from 5-HT_{2A} and 5-HT_{2C}.

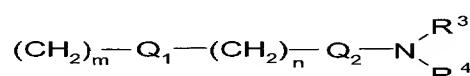
10. (Currently amended) Use according to The method of claim 1, wherein the diseases and disorders disease or disorder of the central nervous system are is selected from the group consisting of anxiety, depression and modest depression, bipolar disorders, sleeping disorders, sexual disorders, psychosis, borderline psychosis, schizophrenia, migraine, personality disorders, and obsessive-compulsive disorders, social phobia, or panic attacks, organic mental disorders in children, aggression, memory disorders, and personality disorders in elderly people, addiction, obesity, bulimia and similar other eating disorders, snoring, and premenstrual troubles.

11. (Currently amended) Use according to The method of claim 1, wherein the damages of damage to the central nervous system are is caused by trauma, brain stroke, neurodegenerative diseases, cardiovascular disorders such as high blood pressure, thrombosis, infarct as well as by or gastrointestinal disorders.

12. (Currently amended) Use according to The method of claim 1 wherein X represents is O, S, or NR^a, wherein R^a is hydrogen, ~~or substituent selected from the group consisting of C₁-C₃-alkyl, C₁-C₃-alkanoyl, C₇-C₁₀-aroyl and or C₇-C₁₀-aryalkyl.~~

13. (Currently amended) Use according to claims 1 or 12 The method of claim 1, wherein Y and Z are each independently from each other mean one or more identical or different substituents linked to any available carbon atom selected from the group consisting of hydrogen, fluorine, chlorine, bromine, C₁-C₄-alkyl, halo-C₁-C₄-alkyl, hydroxy, C₁-C₄-alkoxy, trifluoromethoxy, C₁-C₄-alkanoyl, amino, amino-C₁-C₄-alkyl, N-(C₁-C₄-alkyl)amino, N,N-di(C₁-C₄-alkyl)amino, thiol, C₁-C₄-alkylthio, cyano and nitro.

14. (Currently amended) Use according to claims 1, 12 or 13 The method of claim 1, wherein R¹ has the meaning of is selected from the group consisting of hydrogen, halogen, C₁-C₄-alkyl optionally substituted with one, two, ~~three~~ or more substituents selected from the group consisting of halogen atom, hydroxy, C₁-C₄ alkoxy, thiol, C₁-C₄ alkylthio, amino, N-(C₁-C₄) alkylamino and N,N-di(C₁-C₄-alkyl)-amino; hydroxy; C₁-C₄ alkoxy; thiol; C₁-C₄ alkylthio; amino; N-(C₁-C₄ alkyl)amino; N,N-di-(C₁-C₄ alkyl)amino; C₁-C₇ alkanoyl; C₇-C₁₀-aroyl; C₁-C₇ alkanoyloxy; C₁-C₇ alkyloxycarbonyl, C₇-C₁₀-aryloxycarbonyl; carbamoyl; N-(C₁-C₇-alkyl)carbamoyl; N,N-di(C₁-C₇-alkyl)carbamoyl; cyano; cyano-C₁-C₇ alkyl; nitro; or and a substituent represented with of the formula II:



II

wherein

~~R³ and R⁴ simultaneously or are each independently from each other represent hydrogen, C₁-C₄-alkyl, or aryl, wherein aryl has the meaning as defined above or R³ and R⁴ taken together with [[N]] the nitrogen atom to which they are attached form a have the meaning of heterocycle or heteroaryl group selected from the group consisting of morpholine-4-yl, piperidine-1-yl, pyrrolidine-1-yl, imidazole-1-yl and piperazine-1-yl;~~

~~m and n have the meaning of are each independently an integer from 0 to 3; and~~

~~Q₁ and Q₂ are each independently from each other have the meaning of oxygen or CH₂ group.~~

15. (Currently amended) Use according to The method of claim 1, wherein the compounds compound of the general formula I, pharmaceutically acceptable salts and solvates thereof are is selected from the group consisting of:

1H-8-oxa-1-aza-dibenzo[e,h]azulene;
11-chloro-1H-8-oxa-1-aza-dibenzo[e,h]azulene;
1H-8-thia-1-aza-dibenzo[e,h]azulene;
1H-8-oxa-1-aza-dibenzo[e,h]azulene-2-carbaldehyde;
11-chloro-1H-8-oxa-1-aza-dibenzo[e,h]azulene-2-carbaldehyde;
1H-8-thia-1-aza-dibenzo[e,h]azulene-2-carbaldehyde;
1-(2-trimethylsilyl-ethoxymethyl)-1H-8-oxa-1-aza-dibenzo[e,h]azulene-2-carbaldehyde;
11-chloro-1-(2-trimethylsilyl-ethoxymethyl)-1H-8-oxa-1-aza-dibenzo[e,h]azulene-2-carbaldehyde;
1-(2-trimethylsilyl-ethoxymethyl)-1H-8-thia-1-aza-dibenzo[e,h]azulene-2-carbaldehyde;
[1-(2-trimethylsilyl-ethoxymethyl)-1H-8-oxa-1-aza-dibenzo[e,h]azulen-2-yl]-methanol;

[11-chloro-1-(2-trimethylsilyl-ethoxymethyl)-1H-8-oxa-1-aza-dibenzo[e,h]azulen-2-yl]-methanol;

[1-(2-trimethylsilyl-ethoxymethyl)-1H-8-thia-1-aza-dibenzo[e,h]azulen-2-yl]-methanol;

dimethyl-{2-[1-(2-trimethylsilyl-ethoxymethyl)-1H-8-oxa-1-aza-dibenzo[e,h]azulen-2-ylmethoxy]-ethyl}-amine;

dimethyl-[2-(1H-8-oxa-1-aza-dibenzo[e,h]azulen-2-ylmethoxy)-ethyl]-amine;

dimethyl-{3-[1-(2-trimethylsilyl-ethoxymethyl)-1H-8-oxa-1-aza-dibenzo[e,h]azulen-2-ylmethoxy]-propyl}-amine;

dimethyl-[3-(1H-8-oxa-1-aza-dibenzo[e,h]azulen-2-ylmethoxy)-propyl]-amine;

{2-[11-chloro-1-(2-trimethylsilyl-ethoxymethyl)-1H-8-oxa-1-aza-dibenzo[e,h]azulen-2-ylmethoxy]-ethyl}-dimethyl-amine;

[2-(11-chloro-1H-8-oxa-1-aza-dibenzo[e,h]azulen-2-ylmethoxy)-ethyl]-dimethyl-amine;

{3-[11-chloro-1-(2-trimethylsilyl-ethoxymethyl)-1H-8-oxa-1-aza-dibenzo[e,h]azulen-2-ylmethoxy]-propyl}-dimethyl-amine;

[3-(11-chloro-1H-8-oxa-1-aza-dibenzo[e,h]azulen-2-ylmethoxy)-propyl]-dimethyl-amine;

dimethyl-{2-[1-(2-trimethylsilyl-ethoxymethyl)-1H-8-thia-1-aza-dibenzo[e,h]azulen-2-ylmethoxy]-ethyl}-amine;

dimethyl-[2-(1H-8-thia-1-aza-dibenzo[e,h]azulen-2-ylmethoxy)-ethyl]-amine;

dimethyl-{3-[1-(2-trimethylsilyl-ethoxymethyl)-1H-8-thia-1-aza-dibenzo[e,h]azulen-2-ylmethoxy]-propyl}-amine;

dimethyl-[3-(1H-8-thia-1-aza-dibenzo[e,h]azulen-2-ylmethoxy)-propyl]-amine;

3-[1-(2-trimethylsilyl-ethoxymethyl)-1H-8-thia-1-aza-dibenzo[e,h]azulen-2-ylmethoxy]-propylamine; and

3-(1H-8-thia-1-aza-dibenzo[e,h]azulen-2-ylmethoxy)-propylamine; and

a pharmaceutically acceptable salt or solvate thereof.